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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/684,684	10/15/2003	Kohei Yamanaka	Q76899	3402

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EXAMINER

GARCIA, ERNESTO

ART UNIT	PAPER NUMBER
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3679

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/684,684

Applicant(s)

YAMANAKA ET AL.

Examiner

Ernesto Garcia

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 12-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/15/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Restriction

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-11, drawn to structure, classified in class 403, subclass 30.
- II. Claims 12-20, drawn to a method of coupling a shaft member and a cylindrical member, classified in class 29, subclass 517.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another different process such as using a threaded screw to deform the inner surface or use electromagnetic waves.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Alan J. Kasper on February 2, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-11. Applicant in replying to this Office action must make affirmation of this election. Claims 12-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "2e" and "2f" have both been used to designate a groove (Figures 10 and 11).

The drawings are objected to because the axial groove 2e in Figures 10 and 11 is not a proper representation of the axial groove being greater in depth than the circumferential groove as shown in Figure 9 and claimed in claim 2. In other words, Figures 10 and 11 shows the axial groove starting at the face 2i of the circumferential

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groove when the axial groove should be shown extending beyond the face 2i of the circumferential groove.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "deformed inner surface being in press contact with the opposed faces 2i of the circumferential groove at the intersection" (claim 2, in particular in Fig. 11) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. Figure 11 shows the deformed inner surface away from the opposed faces 2i.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended". If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the examiner does not accept the changes, the

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applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2-5 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 2, the metes and bounds of the claim is unclear. Claim 1 has stated that the "outer periphery is formed with at least one of axial groove and a circumferential groove" in lines 3-4, which indicates that the outer periphery is formed with an axial groove or a circumferential groove and not both. Yet, claim 2 further limits claim 1 by providing a comparison between the axial groove and the circumferential groove when both grooves are not required on the shaft member. Therefore, for claim 2 to be valid both grooves need to be positively formed on the shaft.

Regarding claims 3-5, the claims depend from claim 2 and therefore are indefinite.

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Regarding claim 11, it is unclear whether "the axial member" is the shaft member. Furthermore, the meets and bounds of the claim is unclear. Claim 1, in lines 1-2, states that "the axial member comprises one of an input shaft and an output shaft", which indicates that the axial member (or shaft member?) comprises an input shaft or an output shaft, and not both. This limitation conflicts with the limitation "arranged relatively rotatably with respect to the input shaft" because if the axial member comprises an input shaft how can the input shaft be arranged relatively with respect to itself.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 6, 7, 9, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Chikaraishi, 6,301,975 (see marked-up attachment).

Regarding claim 1, Chikaraishi discloses, in Figures 2 and 5B, a structure comprising a shaft member **3** and a cylindrical member **10**. The shaft member **3** is formed out of a first material. The cylindrical member **10** is formed out of a second material greater in linear expansion coefficient than the first material (col. 1, lines 48-

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53). The shaft member **3** has an outer periphery **A2** formed with an axial groove **11** or a circumferential groove **12**. The circumferential groove **12** has a cross-section having opposed faces **A5** substantially parallel to each other. The cylindrical member **10** is fitted to the outer periphery **A2** of the shaft member **3**. A caulked portion **11** is provided to the cylindrical member **10** at a position corresponding to the circumferential groove **12** of the shaft member **3**. The caulked portion **11** has a deformed inner surface **A8** in press contact with the faces **A5** of the circumferential groove **12**.

Regarding claim 6, the axial groove **11** comprises a plurality of groove portions in a circumferential direction.

Regarding claim 7, the groove portions are three in number.

Regarding claim 9, the cylindrical member **10** is loosely fitted to the shaft member **3** except the caulked portion **11**.

Regarding claim 11, the shaft member **3** comprises an output shaft arranged relatively rotatably with respect to an input shaft **4**.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chikaraishi, 6,301,975.

Regarding claim 8, the cross section of the circumferential groove **12** is rectangular (Fig. 4A). However, the cross section of the axial groove **11** is of a different cross section. Applicant is reminded that a change in the shape of a prior art device is a design consideration within the skill of the art. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966). Therefore, as taught by Chikaraishi teaching circumferential groove **12** being rectangular, it would have been obvious to one of ordinary skill in the art at the time the invention was made to also make the axial groove **11** be of a rectangular cross section.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chikaraishi, 6,301,975, in view of Edgemon, Jr., 3,642,311.

Regarding claim 10, Chikaraishi, as discussed above, fails to disclose the axial groove **11** having an opening edge formed at an acute angle. Edgemon, Jr. teaches, in Figure 2, an axial groove 18 having an opening edge formed at an acute angle. Edgemon, Jr. does not state why the opening edge is formed at an acute angle. Applicant is reminded that side faces of a rectangular axial groove formed on a cylindrical surface inherently form an opening edge at an acute angle as part of a design consideration. Therefore, as taught by Edgemon, Jr., it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the axial groove have an opening edge formed at an acute angle as part of forming an axial groove being rectangular on a cylindrical surface.

Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chikaraishi, 6,301,975, in view of Jackman, 2,913,290.

Regarding claim 2, Chikaraishi, as discussed above, discloses the inner surface **A8** being in press contact with the faces **A5** of the axial groove **11**. However, Chikaraishi fails to disclose the axial groove **11** and the circumferential groove **12** being different in depth from each other; the caulked portion **11** being placed at an intersection of the axial groove **11** and the circumferential groove **12**; and the inner surface **A8** being in press contact with the faces **A5** of the axial groove **11**. Jackman teaches, in Figures 4 and 5, an axial groove **12** and the circumferential groove **16** being different in depth from each other so that the bottom of a caulked portion **20** does not terminate adjacent

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the bottom thereof (col. 2, lines 34-35). Furthermore, Jackman teaches the caulked portion **20, 24** being placed at an intersection of the axial groove **12** and the circumferential groove **16**; and an inner surface of the caulked portion **20, 24** is in press contact with faces of the axial groove **12**. Therefore, as taught by Jackman, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the axial groove **11** and the circumferential groove **12** different in depth from each other so that the bottom of the caulked portion **20** does not terminate adjacent the bottom thereof.

Regarding claim 3, given the modification above, the axial groove **11** would be greater in depth than the circumferential groove **12**.

Regarding claim 4, given the modification above, the caulked portion **11** would be greater in circumferential width than the intersection of the axial groove **11** and the circumferential groove **12**.

Regarding claim 5, given the modification above, the caulked portion **11** will comprise a first caulked part corresponding to the circumferential groove **12** and a second caulked part corresponding to the axial groove **11**. The second caulked part would be arranged substantially in a middle of the first caulked part (see Figures 2 and 3 in Jackman).

Conclusion

The following prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Arena, 4,561,799, teaches a caulked portion at an intersection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 703-308-8606. The examiner can normally be reached from 9:30-6:00. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel P. Stodola can be reached on 703-308-2686. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

E.I.,

Daniel P. Stodola

E.G.

February 3, 2005

DANIEL P. STODOLA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

Attachment: one marked-up copy of Chikaraishi, 6,301,975.

Chikaraishi, 6,301,975

FIG.2

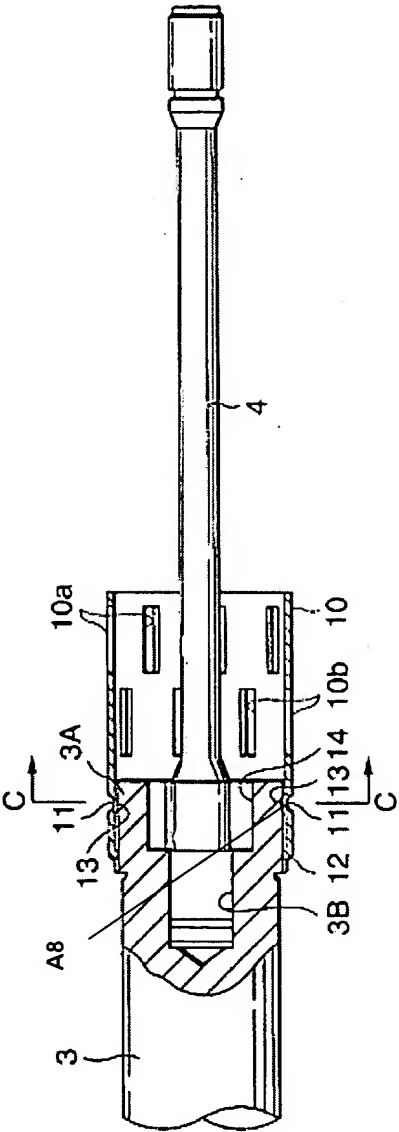
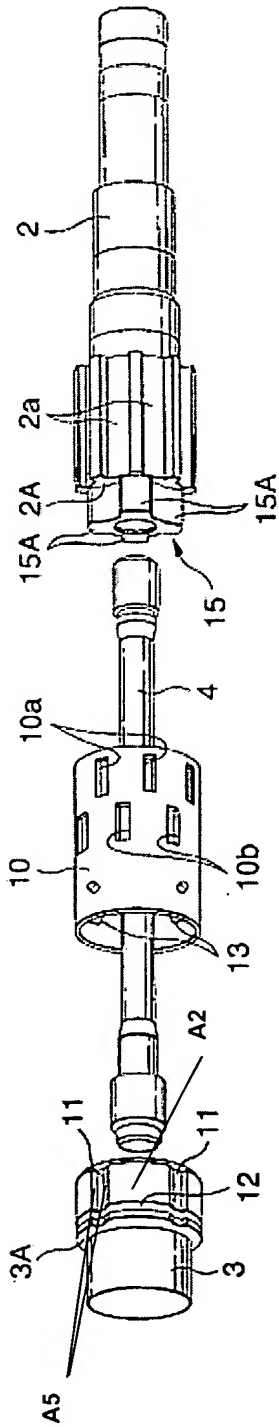


FIG.5B